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Learning Materials on

Energy Transit

UNITED NATIONS
ESCAP
Economic and Social Commission for Asia and the Pacific

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The learning materials were developed for capacity building activities to strengthen subregional connectivity in East and North-East Asia through effective economic corridor management. ESCAP East and North-East Asia Office worked with Energy Charter Secretariat in developing the learning materials.

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Objectives and Content

The overall objective of the training is to provide a thorough introduction to the concept of energy transit from the perspective of a transit country. It aims to provide a strong understanding of the concept of energy security and the role of transit. The module will discuss legal, operational and legal aspects of energy transit and provide an overview of instruments to mitigate potential risks. The training aims to give a thorough understanding on the main elements of energy transit:

- Transit in the context of energy security – different perspectives of exporting, importing and transit states
- Policy options and measures to enhance energy security
- Overview of international legal frameworks governing transit – the definition of transit in various international conventions and treaties
- Main challenges associated with energy transit
- Organisational and regulatory aspects of energy transit – types of transit systems, regulatory issues related to access to infrastructure, transit tariffs and tariff methodologies, capacity allocation
- Instruments facilitating energy transit – model agreements, dispute settlement and early warning mechanisms
- Specific examples illustrating transit cases on: dispute settlement and early warning; and transit tariffs.

Learning Outcomes

After completing this training module and having consulted the reference readings, you will be able to:

- understand the concept of transit and its role in the energy security
- recognize the importance of transit in the energy value chain
- discuss main challenges associated with energy transit
- apply tools and instruments to facilitate energy transit

Reference Readings

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https://digitallibrary.un.org/record/779286?ln=en

1. Concept of energy security

1.1 Transit in the context of energy security

Despite many governments' emphasis on the importance of energy security, there is no consensus about what energy security is supposed to mean. As a result, there are a number of definitions of energy security. In other words, "where countries stand on energy security depends on where they sit" (Luft et al 2011, p.45). Therefore, the concept of energy security has a different meaning for energy exporting and importing countries. For energy importing countries security of supply is the main concern, while exporting countries are more concerned about security of demand. However, many producing/exporting countries also face energy insecurity of domestic supply.

Energy security has traditionally been understood as security of supply. The tools to ensure security of supply are manifold and include trade, diversification, supply expansion, security enhancement, stockpiling, demand control and, to some extent, energy subsidies. Security of supply is not challenged as a concept, as nearly all countries are in need of it, independent of whether they are themselves energy producers or transit countries.

Energy importing countries are naturally concerned about **energy security of supply**. For instance, as an international organisation that has 29 member countries, largely consisting of major energy importers, the IEA defines energy security as "Uninterrupted availability of energy sources at an affordable price. Energy security has many aspects: long-term energy security mainly deals with timely investments to supply energy in line with economic developments and environmental needs. On the other hand, short-term energy security focuses on the ability of the energy system to react promptly to sudden changes in the supply-demand balance."

Box 1: Supply security

Europe as a major energy importing region in the world defines energy security as follows "the European Union's long-term strategy for energy supply security must be geared to ensure, for the well-being of its citizens and the proper functioning of the economy, the uninterrupted physical availability of energy products on the market, at a price which is affordable for all consumers (private and industrial), while respecting environmental concerns and looking towards sustainable development" ('Towards a European Strategy for the security of energy supply', 2000).

Following oil price collapse in 1986, energy producers started to argue that the **security of demand** element should be considered as a part of energy security. For many energy exporting countries, international energy security means stable energy export flow at a "reasonable" price that can assure not only new energy investment but also general economic development.

Box 2: Demand security

In the Riyadh Declaration of 2007, OPEC leaders underscored "the interrelationships between global security of petroleum supply and the security and predictability of demand". Individual OPEC members including Saudi Arabia, Kuwait, and Iran echo this claim in different occasions (Royal Embassy of Saudi Arabia 2012, Middle East Economic Survey 2004, Amin-Mansour 2013). The Gas Exporting Countries Forum (GECF) deemed by some to be a gas OPEC, emphasises "the importance of equitable risk sharing among all gas market players to ensure the security of gas supply and demand" (GECF 2013).

While energy security discussions have been dominated by debates about security of supply vs. security of demand, there is another important element in the energy supply chain we refer to is **security of transit**. Transit security has become increasingly important in recent years to ensure movement of energy commodities from a producing country to a consuming country via one or more borders.

Since all of the actors in the energy value chain are interested in a well-functioning delivery and transportation system for energy commodities, transit security is important but difficult to define. Following disputes over exports of natural gas from Russian Federation to the EU, academia defined gas transit security as "the acceptable level of threat of supply and price disruption arising from risks associated with the transit of gas supplies" (Yafimava 2011, p.17).

Box 3: Transit security

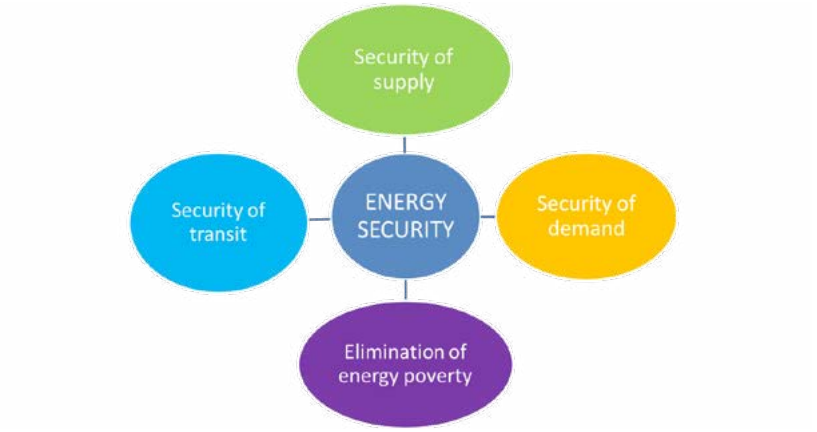
Turkey is on course to becoming a major transit country. Since the completion of Baku-Tbilisi-Ceyhan (BTC) pipeline in 2006 that transports crude oil from Azerbaijan to the Turkish port of Ceyhan, on the Mediterranean coast, the country promotes a number of pipeline projects to serve energy demand not only in Turkey but also in Europe. Indeed, according to the "Strategic Plan (2010-2014)" of the Ministry of Energy and Natural Resources, "becoming an energy hub" is one of Ankara's strategic aims.

Transit countries have not developed any specific concept of energy security of transit. Given their role as consumers of energy they rather adopt the concept of security of supply. Revenues from transit may

be significant for the national economy, however hardly to the extent that revenues from sales are for energy exports.

On the contrary, the importance of transit in global energy security was raised by energy exporting country. In 2013 Turkmenistan sponsored the United Nations General Assembly Resolution No. 67/263 "On reliable and stable transit of energy and its role in ensuring sustainable development and international cooperation", which was adopted by 72 states on 17 May 2013.

Figure 1 Dimensions of energy security



Energy poverty is another serious problem when we discuss energy security. It should be examined whether an energy poverty problem is a result of domestic or international energy supplies, and whether it is about access to modern energy (thus, new energy flows) or the improvement of supply stability and/or affordability of an existing energy flow. If it is entirely about creating a new domestic energy flow, energy poverty could be better addressed under another pillar of energy policy or even within a social welfare system because energy security concepts usually assume existing energy flows. In the case of an existing domestic energy flow, it could be addressed as a domestic energy security issue, not an international one.

For the sake of clarity and simplicity, environmental aspects of energy security are not discussed here in order to avoid any overlap with the debates on sustainable energy which is in the heart of the Sustainable Development Agenda and the Paris Agreement.

Read — Learn more about different approaches to energy security:

https://www.energycharter.org/fileadmin/DocumentsMedia/Thematic/International_Energy_Security_2015_en.pdf

Note — Please provide brief descriptions of the following:

- Priorities of the government of Mongolia in terms of energy security.
- Which energy security policy options and measures listed below are pursued by the government of Mongolia?
- What are the most promising policy options from your point of view?

1.2 Ensuring energy security - Policy options

Diversification is certainly one of the most common policy tools to address supply security, and it has three forms: diversification of energy sources (alternative energy development), of suppliers/consumers, and of supply routes.

Traditionally, alternative energy development almost always aimed at decreasing dependency on oil, especially after the oil crises, and particularly in the power and industry sectors. The development of nuclear, coal and natural gas were often encouraged to replace oil. However, nowadays alternative energy sources primarily mean renewable energies.

Supply expansion is one of the first policies to be considered, especially if there is a potential to develop domestic resources. If domestic resource development is not enough to meet energy demand, an energy consumer may turn to foreign resources. Although importers could simply use the spot market to secure supply, overseas equity investment, often combined with long-term contracts, is perceived by some governments to be an effective strategy for enhancing security of the energy supply.

Stockpiling strategy reserves of oil has been adopted for decades in many OECD countries. Indeed, one of the main aims of establishing the IEA by the OECD was the coordination of oil stockpiling within its member countries. Oil stockpiling in IEA countries and the IEA emergency response mechanism were first set up in 1974. Today, IEA's member countries are required to hold oil stocks equivalent to at least 90 days of net oil imports, either by industry or a combination of industry and a public entity, i.e. by the government and/or

agency established to fulfil this role.

Security measures, possibly associated with military options, are recognised as part of a supply security policy. Since the 9/11 terrorist attack in the US, energy importers are increasingly aware of the vulnerability of energy supply infrastructure. The US has undertaken the most comprehensive measures in terms of protecting their energy infrastructure. Energy is regarded as one of the most critical infrastructure sectors by the government (Department of Homeland Security 2007). The EU considers transport and the energy sectors as being amongst the immediate priorities for any action against threats. In recent years, increasing attention has also been paid to the vulnerability of IT systems (cybersecurity) and protection of critical energy infrastructure from natural disasters.

Demand Control concerns two elements: energy efficiency and interruptible contracts.

Energy efficiency is a traditional countermeasure to tackle energy insecurity for importers, a classic example being Japan's Energy Conservation Law of 1979. The EU regards energy efficiency as the most immediate element within a European energy security policy, and targets improving energy efficiency by 20% by 2020 (EC 2014).

An interruptible contract is an agreement that allows an energy supplier to interrupt shipments with agreed customers at agreed times. While this type of contract is widely incorporated in North America and Western Europe for gas and electricity, it can be regarded as a last resort to minimise the impact of an energy supply cut.

Energy subsidies are not necessarily categorised as a policy tool to enhance energy security, since they are often in place to allow energy flows to low income population, rather than protecting existing flows. Energy subsidies are intended either to make energy products affordable or to make energy production economically feasible (IMF 2013). Oil products (LPG, gasoline, diesel, kerosene), electricity, and natural gas are the main fuels for consumer subsidies, especially in energy rich, exporting countries. However, energy subsidies are generally seen to create market distortion, to disincentivise energy efficiency and to allow wasteful consumption.

While many of the policy tools listed above aim at lowering the mutual dependence of energy exporters and importers, **energy trade** still remains a dominant instrument for energy consumers to secure supplies and for producers to gain revenues. Whether the relationship between exporters and importers meets the requirement of security of supply and security of demand respectively depends on the terms and condition of such energy trade, in particular the commercial contracts concluded, their duration and the

pricing formulas.

Box 4: EU energy security

Secure gas supplies to prevent and respond to potential disruptions
Diversification of gas supply sources and routes
EU oil stocks to maintain in case of emergency
Offshore oil and gas safety to prevent and respond to accidents
Oil and gas licensing for exploration and production
Security of electricity supply to prepare for and manage crisis situations
Critical infrastructure and cybersecurity
Energy supply and pandemics to ensure access to energy and cross-border coordination

2 Explaining energy transit

2.1 Transit under international legal frameworks

Energy transit and relevant international conventions are not new phenomena: already in the 1920s the first international conventions on the freedom of transit were signed. Most transit connections were negotiated and regulated on a case by case basis. In recent years transit of energy has become critical to policy. While volumes have increased, its growing importance lies rather in its strategic significance. The emergence of new independent states, creation of new borders between them, energy producers, often land-locked, and their markets, as well as an expected increase in energy demand, make grid-bound transit a major energy policy issue on the Eurasian continent.

The Barcelona Convention and Statute on Freedom of Transit was signed in Barcelona on 20 April 1921 with the aim to provide general rules related to transit of various commercial goods across national boundaries. The treaty contained provisions on non-discrimination, reasonable transit tariffs and non-deviation from the conventional provisions, except in case of an emergency affecting the safety or the vital interests of the transit State.

The General Agreement on Tariffs and Trade (GATT) was initially signed by 23 nations in in Geneva on 30 October 1947 (GATT) with the purpose to promote international trade by reducing or eliminating trade barriers. GAAT was eventually replaced by the **World Trade Organisation** which was officially established on 1 January 1995. Article V of GATT applies to the transit of goods (traffic in transit) and specifies the obligations of transit States in relation to non-discrimination, imposition of reasonable charges and regulations as well as exemption from customs duties and all other transit duties or charges. Similar to the Barcelona Convention, Article V of GATT incorporates the principle of freedom of transit.

Other international frameworks such as the **Convention on Transit Trade of Land-locked States** (1965) and the **United Nations Convention on the Law of the Sea** (1982) also address the issues of the right of access and transit of and from the high sea. The 1982 UNCLOS is particularly relevant for the projects on submarine pipelines and cables.

In December 1994 the **Energy Charter Treaty** (ECT) was signed to provide legally-binding multilateral framework for energy cooperation, which addresses among other things, complex political,

economic and legal issues associated with energy transit. Article 7 of the ECT specifies WTO rules for Energy Materials and Products and grid-bound energies. The ECT promotes the principles of freedom of transit and of non-discrimination, encourages cooperation in modernising, developing and operating transit facilities, and prohibits interruption of flows and the placing of obstacles to construction of new energy transport facilities. Transit provisions of the ECT are based on the principle of freedom of transit as enshrined in the GATT 1947.

2.2 Definition of transit

The transit provisions of the ECT are based on the principle of freedom of transit as enshrined in General Agreement on Tariffs and Trade (GATT) 1947. New WTO Agreement adopted in 1994 did not introduce any changes to the provisions of Article V which applies to the transit of goods (traffic in transit). Transit occurs when passage across territory with or without change in the mode of transport is only a portion of a complete journey beginning and terminating beyond the frontier of the transit contracting party.

Energy trade in general is covered by the WTO rules. Article V GATT provides for the definition of the freedom of transit and non-discrimination, imposition of reasonable and cost-related charges and exemption from customs duties as well as all other transit duties or charges on transited goods.

Box 5: Article V (GATT 1947)

1. …….
2. **There shall be freedom of transit through the territory of each contracting party, via the routes most convenient for international transit**, for traffic in transit to or from the territory of other contracting parties. **No distinction shall be made which is based on the flag of vessels, the place of origin, departure, entry, exit or destination**, or on any circumstances relating to the ownership or goods, of vessels or of other means of transport.
3. Any contracting party may require that traffic in transit through its territory be entered at the proper custom house, but, except in cases of failure to comply with applicable customs laws and regulations, such traffic coming from or going to the territory of other contracting parties shall not be subject to any unnecessary delays or restrictions and shall be exempt from customs duties and from all transit duties or other charges imposed in respect of transit, **except charges for transportation or those commensurate with administrative expenses entailed by transit or with the cost of services rendered**.
4. ……..

However, these general trade rules are not designed to address some specific energy-related aspects of trade, including access to infrastructure and conditions of such access, transit tariffs, creation of new infrastructure, non-interruption of energy flow and security of already established transit flows. All of these aspects are covered by the ECT which specifies WTO rules for energy trade.

Read — Please read Article 7 of the ECT which covers transit:

https://www.energycharter.org/fileadmin/DocumentsMedia/Legal/ECTC-en.pdf.
Check the list of the ECT Members and Observers: *https://www.energycharter.org/who-we-are/members-observers/*

Note — Write down the answers to the following questions:

- What kind of energy infrastructure is covered by the ECT transit provisions?
- What are the obligations of a transit state under Article 7 ECT?
- What is the status of the countries along proposed Economic Corridor in the Energy Charter Conference?

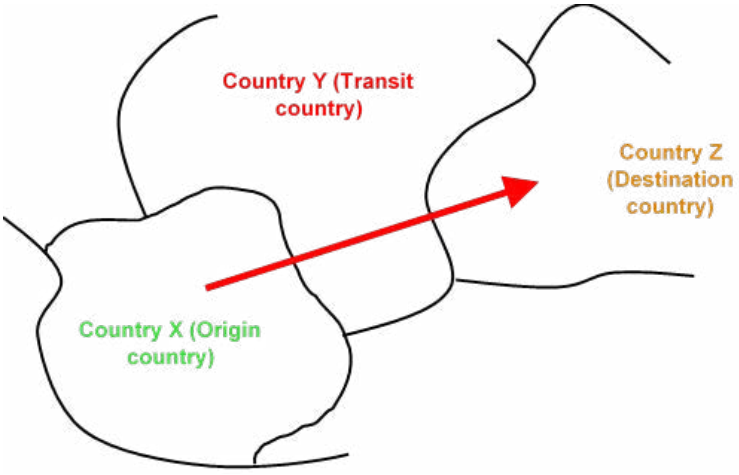
The ECT is the only multilateral treaty regulating transit of energy products and materials in particular. The Treaty's binding provisions on energy transit are among the key commitments made by the Treaty members. Since 1999, the Charter Conference, the decision-making body of the Energy Charter, has pursued the objective to ensure secure, efficient, uninterrupted and unimpeded transit, to promote more efficient use of the infrastructure and to facilitate its construction and modification.

Transit is understood as through-transit, meaning the carriage of energy materials and products across the Area (territory) of a Contracting Party. This normally involves three countries – the country of origin, the transit country and the country of destination. For the ECT it is sufficient that the transit country and at least the country of origin or the country of destination is a Contracting Party. The definition of transit also includes the case where energy materials and products are destined for the country of origin, when this carriage involves transit through another country. In this case transit involves only two countries.

The primary responsibility of the transit Contracting Party is to take necessary measures to facilitate the Transit of energy materials and products without distinction as to their origin, destination or ownership. It may not discriminate either as to pricing on the basis of such distinctions or impose any unreasonable delays, restrictions or charges.

A number of provisions deals with the security of transit flows. Contracting Parties shall secure established flows of energy materials and products to, from or between the Areas of other Contracting Parties. The interruption or reduction of existing transit flows in view of a dispute over transit is prohibited, unless allowed by a contract, agreement or a Conciliator's decision. A dispute resolution mechanism involving a Conciliator is available under Article 7(7). In case of an interruption, the Contracting Parties shall encourage relevant entities to co-operate in mitigating the effects of such interruption.

Figure 2 Definition of transit



Other provisions of the ECT deal with the upgrading of infrastructure or the creation of new one. Soft obligations include the commitment to encourage relevant entities (in particular, transmission system operators) in modernising energy transport facilities necessary for transit, in the development and operation of cross-border energy transport facilities and in facilitating their interconnection. The Contracting Parties may not place obstacles in the way of the establishment of new capacity (e.g. the construction of new pipelines and grids or the expansion or extension of existing ones) in case that transit cannot be achieved on commercial terms by means of existing facilities. Exceptions must have a legal basis and must correspond to the general principle of non-discrimination. There is no obligation to permit the construction or modification of energy transport facilities or new or additional transit through existing facilities in case this would endanger the security or efficiency of energy systems, or security of supply.

To summarise, Article 7 of the ECT aims at establishing a multilateral framework of rules governing transit flows of energy. On the basis of the principles of "freedom of transit" and "non-discrimination"

embodied in GATT Article V, the ECT is the first multilateral treaty specifically addressing energy transit through fixed infrastructure.

The following provisions of Article 7 establish certain rights and obligations for Contracting Parties in relation to transit flows of energy over the territory of a Contracting Party:

- Article 7 envisages the facilitation of energy transit by the Contracting Parties in line with GATT Article V on a non-discriminatory basis, which is defined as: (i) no distinction as to the origin, destination or ownership of energy (ii) no discrimination as to pricing on the basis of such distinctions, and (iii) no unreasonable delays, restrictions or charges (Article 7.1).
- Contracting Parties, through their entities, are required to cooperate in modernization, development and operation of transport facilities serving to transit, facilitation of interconnections between such facilities and mitigation of the effects of supply interruptions (Article 7.2).
- With respect to the treatment of energy flows in transit, the Treaty requires the treatment of energy in transit by transit states in no less favourable a manner than that of energy originating in or destined for transit states' own area (Article 7.3).
- The Article also covers situations of lacking infrastructure or insufficient available capacity for transit. If and when transit through existing capacity can not be achieved on commercial terms, creation of new capacity, either through establishment of new transit facilities or through modification of existing transit facilities, should not be prevented by the Contracting Parties (Article 7.4).
- A transit country should permit establishment of the construction or modification of new transit facilities or new or additional transit capacity through existing transit facilities unless it would endanger the security or efficiency of its energy systems, including the security of supply. Transit country should also secure established flows of energy (Article 7.5).

Box 6: Article 7 (ECT)

- **Transit of energy materials and products**
  Crude oil, oil products, natural gas, electricity, coal
- **Transit through fixed infrastructure (Energy transport facilities)**
  High pressure gas pipelines
  High voltage electricity grids and transmission lines
  Crude oil transmission lines and product pipelines
  Coal slurry pipelines
  Other fixed infrastructure
  Maritime transport excluded

3 Main challenges associated with energy transit

The world energy sectors face major challenges over the coming decades. Besides a general tendency towards restructuring and allowing market forces to play a more important role, there is a continued dependence on imported energy by major consuming areas and the emergence of new energy producers in new, often land-locked nation states. Consequently, larger volumes of energy will have to cross more borders, from production areas to consumer markets. The risks and uncertainty of such grid-bound transit will have to be minimised.

Transit contributes to security of supply for consumer countries, market access for producer countries and income for transit countries. Thus, it contributes to free and open trade. Transit also represents a risk, primarily of a political nature.

Because of the uneven distribution of the natural resources, especially gas reserves, transit is of paramount importance for many energy-deficient countries, particularly those relying on a single supplier for their imports.

Energy security involves protection against the following four classes of risk:

1. technical risk: supply disruption due to technical reasons, such as pipeline failure or compressor failure
2. deliverability risk: securing long term supplies from existing or new fields
3. commercial risk: commercial disputes and contractual breakdowns
4. political risk: disruption of existing supply for political reasons as well as the possibility that economic gas supplies will not be developed because of the perception that political risks are too high. Political risk also includes regulatory risk, i.e. regulatory intervention that may have adverse effects on transportation.

Already in 1999, just about one year after the ECT entered into force, some countries flagged the need to start negotiations on an additional international treaty on transit, known as the draft "Transit Protocol". The main purpose of the Protocol was to provide more detailed rules to guarantee the implementation of the ECT principles on transit as well as relevant provisions.

The negotiations on the Transit Protocol were suspended in 2011, mostly because the draft text

was no more accepted as a basis by a large group of states. However, since the Energy Charter Conference indicated that a reset of negotiations on the Protocol would not be excluded, the Secretariat has since then focused its work on analysing where and under which circumstances there might be demand for a reset of negotiations of the Transit Protocol or an additional Energy Charter instrument on energy transit.

The objectives of the negotiations on the Transit Protocol, which started in 2000, were:

- to ensure secure, efficient, uninterrupted and unimpeded transit
- to promote more efficient use of transit infrastructure
- to facilitate the construction or modification of transit infrastructure

Basic issues to be addressed were, among others: sanctity of transit, transparent and non-discriminatory access to transit infrastructure - excluding mandatory third-party access - and prompt and effective dispute settlement.

Agreement was reached for most of the Protocol's text by the end of 2002, notably on:

- the definition of available capacity for transit
- the rules on the utilisation of available capacity (access rules) providing for non-discriminatory and good-faith negotiations on access to energy transport facilities
- the obligation to have in place objective, transparent and non-discriminatory authorisation procedures or legislation concerning the expansion, extension, reconstruction, and operation of energy transport facilities used for transit
- the requirement for transit tariffs and other conditions to be objective, reasonable, transparent, non-discriminatory and based on operational and investment costs, including a reasonable rate of return
- good-faith negotiations on the supply of energy materials and products to the transit country based on transparent and non-discriminatory procedures
- provisions on government charges, technical and accounting standards, metering and measuring, measures in case of accidental interruption, reduction or stoppage of transit as well as international energy swap agreements.

Watch: In light of the China-Mongolia-Russia Economic Corridor, please share your views on the following:

- How would you rank the four types of risk listed in relation to the proposed project?
- What kind of technical issues/difficulties listed below you envisage in planning and implementation stages of the infrastructure project?

Work undertaken at the UN level might offered a new avenue for using the Energy Charter's expertise in transit issues in view of the negotiation of additional commitments. In May 2013, the UN General Assembly adopted Resolution and 67/263 (2013) entitled "Reliable and stable transit of energy and its role in ensuring sustainable development and international cooperation". This resolution was sponsored by Turkmenistan and co-sponsored by 72 states, the majority of which represented by ECT members, and including 26 EU member states. The Resolution, which followed an earlier resolution with the same title adopted in 2008 (63/210), recognizes the need for extensive international cooperation for promoting the reliable transportation of energy to international markets through pipelines and other transportation systems.

In 2014-2016 three meetings of International Experts were organised by the Energy Charter Secretariat in cooperation with the Government of Turkmenistan in implementation of the UN GA resolution on transit. These consultations revealed that the provisions on energy transit continue to be highly valued by the contracting parties and industry representatives. There are many issues to be addressed related to energy transit, including regulatory aspects, pricing, operational and environmental issues to ensure secure energy transit and efficient cooperation between stakeholders.

The list of substantial issues related to transit, which was compiled from extensive consultations, covers the following aspects:

- Transit investment procedures – how the need for expanding capacity in existing facilities, or the building of new facilities, is to be established and implemented
- Access to infrastructure and capacity allocation – transit capacity should be allocated on a non-discriminatory basis without regard to the origin of the product and/or the company
- Access denial – clear provisions describing in which cases the access to the infrastructure can be refused
- Transit tariffs – the principles and methodology of setting transit tariffs in a cost-related, transparent and non-discriminatory manner
- Safety and operational standards – determination of the circumstances of interruption to take measures to avoid and prevent a recurrence of similar events
- Authorisation procedures – governments should ensure cooperation in terms of obtaining permissions, right of way for the infrastructure construction
- Need to regulate separately international transportation and transit of electricity, oil and gas (including LNG) due to the different market functioning

- Transit measurement and reporting procedures – the ability to independently and transparently measure, meter, monitor and account for (in physical and monetary units) how much energy is being carried in transit
- Inclusion of swap type operations of transit nature. Swap operations could be seen as a virtual transit in case of absence of Energy Transport Facilities and, thus facilitating energy trade for the benefit of the countries involved in the transaction
- Inclusion of basic principles for regulation of cross-border transportation would ensure smooth transition to transit once other countries have been physically connected, especially in terms of electricity.
- Cross-border cooperation between network operators
- Dispute resolution and emergency mechanisms – in addition to the ECT conciliation provisions in Article 7, it is important to develop binding dispute resolution mechanisms.

Some of the issues mentioned above are covered to a different extent by the Intergovernmental Agreements (IGA) and Host Government Agreements (HGA). They as well as other transit instruments will be discussed in Section 6 of the Module.

4 Organisational aspects of energy transit

4.1 Organisation of transit

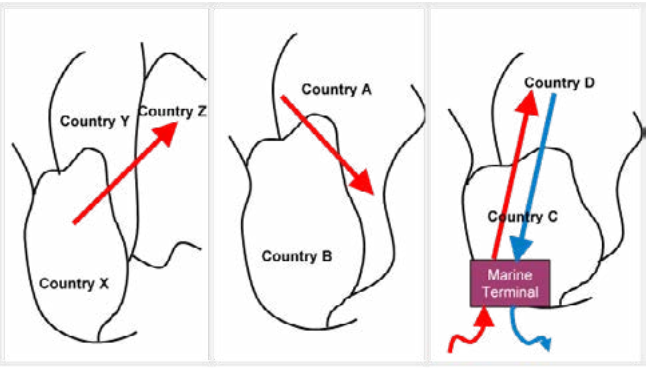
The organisation of gas and electricity transit is usually entrusted to the transmission company/ transmission system operator in the country concerned. The company may be privately- or state-owned and holds a regional or national monopoly. Some transit facilities are owned by the buyer or the seller. Oil transit pipelines are typically owned by the private or state-owned companies buying the crude oil transited.

Gas transmission infrastructure may be privately- or state-owned. Private sector entities may receive concessions from the public administration to finance, design, construct and operate a facility. Under the Build-Operate-Transfer (BOT) regime the public administration delegates to a private undertaking to design and build infrastructure and to operate and maintain these facilities for a certain period. The private party has the responsibly to raise the finance for the project, is entitled to retain the revenues generated by the project and is the owner of the regarded facility. The facility will be transferred to the public administration at the end of the concession agreement. In the case of a Build-Own-Operate-Transfer (BOOT) regime the private entity is the owner of the facility during the concession period. Build-Own-Operate (BOO) is the regime where ownership remains with the private entity and no transfer to the public administration is foreseen.

In a number of countries analysed the gas transmission or transit infrastructure is state-owned. This is the case in Ukraine, where "Naftogaz of Ukraine" is licensed to operate the gas network. The transmission system is considered a national asset and its privatisation forbidden by law. In Kazakhstan, the main high-pressure gas pipelines are operated by the JSC "Intergaz Central Asia" which was granted the status of the National Operator on Main Gas Pipelines Transmission in 2018.

In most cases ownership of the gas infrastructure is with private companies, yet often with the state as a major stakeholder. There is an equally significant number of transmission system owners dominated by private investors. This is no direct link between the regulatory regime and the ownership.

Figure 3 Examples of transit



The majority of onshore gas transmission pipelines in Eurasia are owned or controlled by state enterprises that have de jure or de facto transportation monopolies. The pipelines are operated as an integral part of the activities of the gas company in the country in question. Examples are the transmission pipelines in Ukraine, Poland, Slovakia, Russia and other countries.

As illustrated above, there has been a tendency for the proliferation of LNG projects worldwide, whether liquefaction or regasification terminals, or floating terminals. This not only contributes to the energy supply but also transforms the international gas market into a more flexible, integrated and liberal one.

The gas delivery point is crucial for the way transit pipelines are organised and owned. Some examples include the following:

- In case of Turkmenistan, there is the Central Asia–China gas pipeline which runs alongside a number of transit states (Uzbekistan, Kyrgyzstan, Tajikistan and Kazakhstan). In this case, however, Turkmenistan sells its natural gas destined to China on its border with Kazakhstan, so the transit risk is attached to the buyer, but not the vendor. Turkmenistan also used to sell its gas to Russia on its border.
- Another example is the Maghreb–Europe Gas Pipeline which supplies mainly Spain and Portugal from the Hassi R'mel field in Algeria. Algeria also delivers its gas at its border. In the case of Italian imports from Algeria, SNAM has created a wholly owned subsidiary to take the gas through Tunisia, and a joint venture with Sonatrach, the state-owned Algerian gas company for the crossing of the Strait of Sicily.
- Norway prefers to deliver its export gas at the border of the importing country and therefore

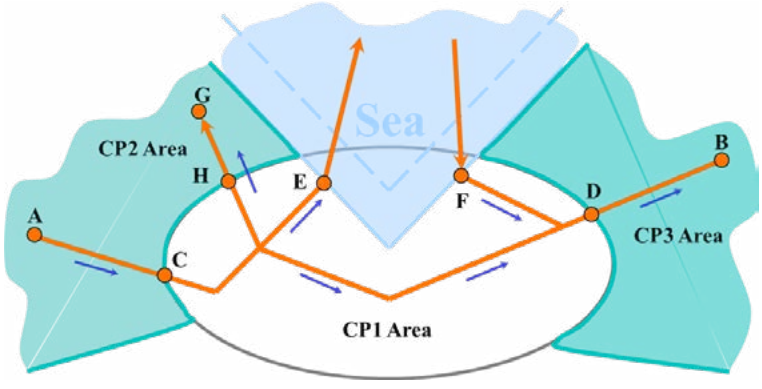
undertakes to arrange for transportation to that point. This means that transit is arranged through German and Belgian pipelines for volumes to France and transit through French pipelines for volumes to Spain. The seller in this case has no ownership in the transit pipelines, he purchases capacity.

- In general, Russian gas has been delivered to Western European customers at a Western European border. In the case of exports to Germany, transportation to the German border is arranged by the seller (with the notable exception of the German gas company VNG which buys its contracted Yamburg volumes at the Ukrainian-Slovak border). Therefore, Russian exports to Germany have to transit Ukraine, Slovakia and the Czech Republic.

Looking specifically at the organisation and ownership of transit pipelines, the following observations can be made:

- Often the transit line is owned by the dominant gas company in the country or the region. The company in question is typically a monopoly, mostly combining the functions of transit and domestic transmission.
- In a few cases transit lines are owned by the gas buyer, such as the lines for gas from Algeria through Tunisia and Morocco to Italy and Spain. The same applies to the Central Asia-China pipeline as described above.
- In Moldova, Belarus, Armenia and Bulgaria, companies of the seller country (Gazprom, Russia) hold ownership interests in the national gas pipeline system.
- More and more often transit pipelines provide examples of mixed ownership, including companies of the transit country, exporting and importing countries.

Figure 4 Transit options



4.2 Types of transit systems

In general, four kinds of transit system can be distinguished:

a. a pipeline crossing sovereign territory and carrying transit gas without any connection to the gas supply system of the transit country. This provides the clearest definition of a transit line but is rare in practice.
b. a transit pipeline which is owned by a separate entity and which is predominantly used for gas transit, but also used to supply gas of the same origin to the transit country.
c. a transit pipeline system which is integrated into the domestic supply system and which is owned and operated by the main national transmission operator, but where the transit gas flow can still be traced.
d. Systems where transit volumes commingle with a highly meshed national grid which are working like a tub, where additional inflow just raises the overall level and will be compensated by corresponding output volumes.

In this section, the adherence of countries to one of the four models is determined from the viewpoint of physical transit flows through the given country, and not based on the definition and treatment of transit gas in applicable regulation. Notably, EU legislation does not distinguish between transmission and transit. It is obvious that a number of countries do not have any transit flows due to their geographical situation as an island or at the end of the supply chain (e.g., Armenia, Cyprus, FYROM, Portugal) or at its beginning (Norway). But even if the majority of countries analysed does have gas flows in transit, the pipeline systems are almost always integrated with the domestic supply system.

Examples for type (a) of a separate system are the transit lines across Kazakhstan, Uzbekistan, Tajikistan and Kyrgyzstan from Turkmenistan to China, and the lines from Algeria across Morocco, as no or only small amounts of transit gas are delivered to these transit countries.

Type (b) was common in the past for the transit lines for Russian gas in the former Comecon (Council for Mutual Economic Assistance) states. It can still be seen within the EU in the cases of the TAG and WAG lines taking Russian gas across Austria to Italy and Germany respectively and MEGAL taking Russian gas further across Germany or the TENP taking Dutch gas to Switzerland and Italy. Another example is the Polish section of the Yamal pipeline, which has two entry points into the Polish transmission system. The pipeline is owned by EuRoPol Gaz S.A., but following an agreement signed on 25 October 2010, Gaz-System S.A., the Polish

Transmission System Operator (TSO), has been installed as its operator. This exemplifies the changes in the European gas transmission networks caused by the Third Energy Package.

Examples for type (c) are the Ukrainian, Belgian or Slovakian systems. Type (d) can be found in the UK, Germany and France, and to a lesser extent Italy.

These four transit systems may imply different methods and approaches related to the regulatory regime and to the transit tariffs in particular. They eventually may require that gas transit is treated differently from domestic flows.

5 Regulatory aspects of energy transit

Pipeline construction requires large up-front investment. Gas projects have long lead times between the planning of a project and the first revenues, increasing financial risks associated with it. Given the high capital investments required for large long-distance pipelines, corresponding high-value consumer markets and substantial proven reserves need to be in place. The investment decision regarding the construction of a new import pipeline should ideally be underpinned by corresponding sales and purchase agreements.

Capital charges are the predominant factor determining the cost of transmission. The main factors determining construction costs are diameter, operating pressure, distance and terrain. At a given pressure, the volume of gas which can be carried through a pipe rises approximately with the square of the diameter. Increasing the operating pressure has two positive effects – first, the transport capacity increases, and second, the friction losses referred to the gas transported, decrease. High-pressure pipelines are thus able to reconcile transport requirements with the reduction of transportation costs. The steel price has an obvious impact on the construction costs, which is subject to fluctuations and dependent on currency exchange rates. Material costs rise with the distance of the pipeline, which is why this factor is also crucial with regard to the competitiveness of a pipeline, e.g. in comparison to an LNG option. From this perspective, it will be shown below that distance-based tariffs correspond to the requirement of cost-reflectiveness, even if they may have disadvantages related to other important aspects.

In most countries, gas pipelines are treated as natural monopolies, requiring some form of external control to regulate tariffs and access conditions. In principle, it is possible for competing pipelines to be built and for tariffs to be set by market forces or by negotiations, but in practice some form of external control exists which regulates, or at least oversees, the formation of gas pipeline tariffs and access conditions.

5.1 Regulation of transit

Regulatory regimes in various countries differ substantially and so does the treatment of energy In transit. While regulated access to pipelines with tariffs set by regulatory authorities is becoming the norm in most of the countries, particularly in Europe, negotiated access including negotiated tariffs are still practiced, for transit and for some specific pipelines.

Many counties have established specialised agencies in charge of the regulation of gas transmission tariffs. In the EU and the Energy Community, the designation of a single national regulatory authority at national level is an obligation under the Third Energy Package. National regulatory authorities shall be independent from any other public or private entity and be able to take autonomous decisions. The regulatory authorities in the EU member states shall be responsible for fixing or approving at least the methodologies for connection and access to national networks, including transmission and distribution tariffs.

The portfolios of regulatory authorities may differ. In Ukraine, the regulation of the natural gas market is entrusted to the National Commission for state regulation in the energy sector (NERC). In Georgia, the National Energy and Water Supply Regulatory Commission has been established as an independent regulatory body. In Kazakhstan, the Agency of the Republic of Kazakhstan for the Regulation of Natural Monopolies (ARNM) is in charge of the regulation and control of tariffs, in Armenia the Commission for the Regulation of Public Services. In Turkey, EMRA, the Energy Market Regulatory Authority, is the key institution in natural gas market reform, acting as the independent regulator for electricity, natural gas, petroleum and LPG markets. Ministries or their branches are acting as regulatory authorities in Belarus (Ministry of Economy) or Norway (Oil and Gas Department).

Box 7: ACER

European Union Agency for the Cooperation of Energy Regulators (ACER) was established in March 2011 as an independent body to foster the integration and completion of the European Internal Energy Market both for electricity and natural gas. ACER ensures:

- a more competitive, integrated market, offering consumers more choice
- an efficient energy infrastructure and networks, enabling energy to move freely across borders, the integration of renewable sources, and therefore ensuring a higher degree of security of supply
- a monitored and transparent energy market guaranteeing consumers fair, cost-reflective prices and a limitation of market abusive behaviours.

The role of the regulator is of particular importance in countries with a regime of **third-party access (TPA)** to the pipeline system. The purpose of third-party access to energy infrastructure built as natural monopolies is to increase competitiveness and thereby to lower prices for the final consumers by enabling them to choose among different suppliers. The regime will be most effective when alternative suppliers are available in the market. However some information in this regard may be helpful for understanding the role of regulatory authorities and the tariff methodologies applied. In particular, in the case of the EU, there is a

preference for market-based capacity allocation mechanisms, establishing a direct link between the access regime and the transmission tariffs.

In the EU, Art. 32 of Directive 2009/73/EC requires that a system of TPA to the transmission and distribution system, as well as LNG facilities, is established, based on published tariffs, applicable to all eligible customers, including supply undertakings, and applied objectively and without discrimination between system users. Like most of the rules from the EU's Third Internal Market Package, TPA will also be an obligation in the parties to the Energy Community Treaty as of 1 January 2015. It is worth noting that while the ECT has strong provisions aiming at an open and competitive market and in particular with regard to transit Understanding 1 with respect to the Treaty as a whole states that "the provisions of the Treaty do not oblige any Contracting Party to introduce mandatory third party access". Outside the EU, mandatory TPA has been notified by Georgia, FYROM, Norway and Switzerland.

The Swiss pipeline law obliges the operators of high-pressure pipelines to provide transport services for third parties, if those are technically possible, economically feasible and if the third party provides an appropriate return. In addition, the sector has entered into a voluntary self-commitment which provides for the conditions of network access for third parties.

Note

Please provide answers to the following questions on the energy sector of Mongolia:

- What is the organisational structure of the energy sector in Mongolia? Briefly describe key entities and their responsibilities.
- What is the role of the Energy Regulatory Authority?
- What are the key functions of the Regulator?

In Kazakhstan, the TSO Intergaz Central Asia is obliged to provide free access for suppliers to the gas transmission system at any time and to conclude a corresponding contract provided capacity is available and the quality of the gas corresponds to national standards and norms. Regulated and non-discriminatory TPA to the transmission and distribution is foreseen in Turkish legislation. Rules for TPA and related tariffs are set in the network code, which entered into force on 1 September 2004. In case of rejection of TPA, the rejected party can complain to EMRA, the regulator, whose decision is final and binding. In Turkmenistan, TPA is possible, but not an obligation; and exceptions are possible. TPA is not provided in Belarus.

Exceptions from TPA may be made for various reasons, with the most important one motivated by the fact that it is often the only way to achieve economies of scale as necessary to get proper financing for new major projects. In the EU exemptions for new gas infrastructure, i.e. interconnectors, LNG and storage facilities may be granted on the basis of Art. 36 of Directive 2009/73/EC. A special procedure is foreseen for such exemptions which also involves the European Commission. Exemptions are listed on the website of the European Commission. Under current decisions for example Trans-Adriatic Pipeline is exempted from the Directive. The Directive further allows a derogation from the TPA regime in the cases of Cyprus, Estonia, Finland, and Latvia by this Directive on the basis of isolated and emergent markets.

In Lithuania, exemptions are possible in view of a lack of capacity or a conflict with public service obligations or on the basis of serious economic and financial difficulties with take-or-pay contracts. In Germany, operators can reject access to the extent they demonstrate that it is not possible or is not reasonable due to the operational or other reasons. The refusal shall be substantiated in writing and promptly notified to the regulatory authority. In France, exceptions are possible for new interconnections and new LNG terminals. In Spain, an ancient transit contract from Morocco to Portugal is in place which remains outside the general requirement of third party access. Outside the EU, exemptions are possible as well, as in the case of Armenia for the purpose of the reliability and safety of the system and technical requirements.

Box 8: Third Party Access (TPA) Exemptions

Major new gas infrastructure, i.e. interconnectors, LNG and storage facilities, may, upon request, be exempted, for a defined period of time, under the following conditions:

a. the investment must enhance competition in gas supply and enhance security of supply
b. the level of risk attached to the investment must be such that the investment would not take place unless an exemption was granted
c. the infrastructure must be owned by a natural or legal person which is separate at least in terms of its legal form from the system operators in whose systems that infrastructure will be built
d. charges must be levied on users of that infrastructure; and (e) the exemption must not be detrimental to competition or the effective functioning of the internal market in natural gas, or the efficient functioning of the regulated system to which the infrastructure is connected.

Source: EU Directive 2009/73/EC of 13 July 2009

5.2 Transit tariffs and charges

Before describing tariff methodologies, it is necessary to bear in mind that tariffs are often not the only payments network users have to make. First of all, users might have to pay government charges in addition or together with transmission tariffs. While a tariff is a fee paid by the customers to cover the costs of investment and financing, operating and maintaining the pipeline as well as an element of profit for the operator, a government charge is a tax levied by some transit countries essentially as a fee for the right of way through that country's territory and as compensation for taxes not levied and for service rendered by the country (e.g. protection of pipeline).

It is not always directly related to costs of transport. Such government charges are uncommon; the state normally benefits from business taxes paid by the pipeline operator on the service provided. Moreover, as it has been provided in the draft Transit Protocol of the Energy Charter, government charges would need to be in line with Art. 5 GATT and be commensurate with administrative expenses entailed by transit or with the cost of services rendered.

Most countries which notified the existence of government charges referred to taxes such as VAT, state or local level taxes or fees. Georgia stated that a distinction may exist in the case of transit. This refers in particular to the east-west-transit through the South Caucasus Pipeline (SCP) delivering gas from the Azeri Shah Deniz field to Turkey. According to the Host Government Agreement in place, Georgia receives a minimum payment from the pipeline consortium set at 5% of the gas transported either in the form of a fee or in kind, at the annual choice of Georgia as a minimum income from taxation which is fixed and as compensation for the obligation to secure the pipeline. In case of damage to the pipeline (e.g. due to a sabotage) Georgia is liable for damages up to the total of its revenues from the government charges. In addition, Georgia will be entitled to buy a further volume of gas at a concessionary price during a 20-year period. Transit is free of VAT in Georgia.

Other fees which are levied in liberalised markets and that can have similar significance as tariffs include balancing fees for services by the transmission system operator (TSO) to ensure that deviations between input and offtake of network users do not cause problems for the operation of the system. Balancing fees can have significance for network users similar to that of tariffs.

Finally, it should be noted that in view of the openness and competitiveness of gas markets, the absolute levels of tariffs or other fees are often considered less of a problem than other barriers like the

unavailability of capacity. Ultimately, the value of the gas transported is usually much higher than the transportation costs.

The European Union member states have gone further than others in developing an open market for gas. The EU member states shall ensure third-party access to the transmission and distribution system and LNG facilities based on published tariffs, applicable to all eligible customers, including supply undertakings, and applied objectively and without discrimination between system users. Tariffs shall be transparent, take into account the need for system integrity and its improvement and reflect the actual costs incurred, insofar as such costs correspond to those of an efficient and structurally comparable network operator and are transparent, whilst including an appropriate return on investments. Tariffs for network access shall neither restrict market liquidity nor distort trade across borders of different transmission systems. They shall facilitate efficient gas trade and competition and provide incentives for investment and maintaining or creating interoperability for transmission networks. Most EU member states have provisions in their legislation spelling out principles for tariff setting along these lines. Transparency, non-discrimination and cost-reflectiveness are the most important elements.

Transparency is a crucial requirement to allow transmission tariffs to play their role as an efficient interface between network users and transmission system operators, enabling trade in gas and providing the incentives for new investments for capacity extensions or efficiency gains. The principle of transparency has also been provided in the draft Transit Protocol of the Energy Charter with regard to transit tariffs. Transparency of the whole regulatory regime as enshrined in state laws and regulations is required under international law: under the GATT and the ECT, laws, regulations, judicial decisions and administrative rulings of general application affecting the distribution and transportation of goods and other matters shall be published promptly in such a manner as to enable governments and the private sector to get acquainted with them.

Box 9: Tariff principles

The basic function of a tariff is to ensure a revenue flow to the owners of a pipeline that is sufficient to cover operating costs (including maintenance and refurbishment) and provide a reasonable return on the capital invested. Tariffs should:

- be cost reflective and based on robust modelling of flows and of the network
- facilitate efficient gas trade, facilitate market liquidity and gas-to-gas competition
- ensure high levels of transparency
- provide effective and timely signals encouraging efficient long-term investment in transport infrastructure
- take into account the specificities and market characteristics of different networks
- provide a fair return on investment for TSO's and appropriate oversight
- be differentiated among various customers only on the basis of differences in underlying costs

Read Case Study

This would be a good time to read carefully the case study on transit tariffs. (Refer to Case Studies section at end of the module)

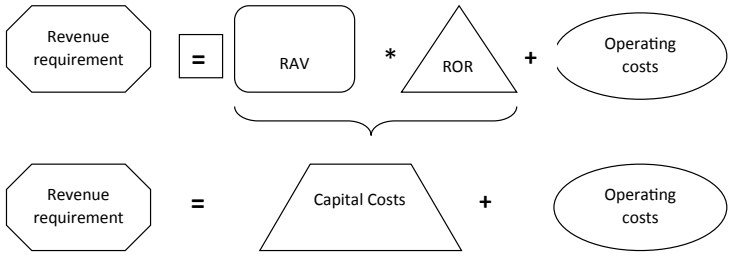
5.3 Tariff Methodologies

The cost-base methodology for setting transmission and transit tariffs comprises two stages: (a) the calculation of total allowable costs for the operation of the system in order to determine the revenue requirement; and (b) the allocation of these costs to individual shippers. Negotiated transit tariffs do not necessarily follow the cost-based approach.

The two basic approaches used for the regulation of transmission tariffs are rate-of-return regulation and incentive regulation. Under rate-of-return or 'cost plus' regulation, the regulator sets the allowed revenue to cover the reasonable costs of the service, based on the costs of the fixed investment in pipeline networks, financing and operational costs as well as a reasonable return on the assets necessary to provide the service. The total cost base is usually set by a regulator or negotiated with the transmission system operator (TSO). In the case of incentive, or 'cap regulation', prices or revenues are set in advance (in most cases for a regulatory period of 3-5 years), inducing the TSO to cut costs by allowing it to retain additional profits gained through efficiency savings. At the end of the regulatory period, prices and revenues are then recalculated for the next period. Revenues exceeding the allowed revenues will be corrected, and so will normally be revenues less than the allowed revenues, e.g. in the case of under-utilisation of the pipeline. Cap regulation is today quite common. Most countries which chose this approach apply revenue caps, while only a few apply price caps.

The total revenue requirement is the fundamental element in any rate-setting exercise. It covers all costs of operation, plus an element of profit calculated as an allowed rate of return on the asset value of the operation.

Figure 5 Calculation of revenue requirement



The regulatory decision regarding the Regulated Asset Value (RAV) of the fixed assets necessary to provide the regulated service is crucial in determining the return on the investment of the TSO. This value derives from the asset base originally set when the tariff-setting process was initiated to which may be added subsequently approved investments in the system. Such new investment is normally added to the asset base at its full cost. Like this, the initial RAV evolves over time as new investment is made and the existing plant is depreciated. There is likely to be a continual process of negotiation between regulatory agency and operator on the extent to which new plants can be included in the asset base.

The RAV for a fixed investment declines over time as its depreciated value falls and, therefore, the annual allowable revenue declines over time as the capital charge falls. A mature pipeline will therefore appear to have lower charges than a new one. The choice of methodologies of combining depreciation and capital charge flows may to some extent determine whether a new pipeline is competitive relative to established ones.

Operating costs can include both fixed and variable elements. The former would normally include human resources and administrative operations. The main element of the variable costs is the cost of the fuel gas required to operate the compressors.

Note

Which of the following represent operating costs of the TSO:

- materials and energy (including own consumption and imbalance deviations);
- external services (including repairs and maintenance, lease of storage capacities);
- taxes and charges;
- payroll;
- employee benefits;
- depreciation.

The RAV is linked to the level of required annual revenue in two ways; the depreciation allowances granted to the TSO and the return on capital which the TSO is granted. Although, strictly speaking, this return on capital is not the same as the profits of the TSO, in the public eye there is likely to be little difference. Given the status of a TSO as a utility monopoly, the level of the regulated return on capital has an important political as well as economic importance. Calculation of the allowed return on capital (often called the weighted average cost of capital or WACC) varies under different methodologies, but essentially involves setting a debt/equity ratio for the TSO, setting a cost of debt finance, estimating a normal equity return, adjusting this by a factor for the risk category of the enterprise and, finally putting together a weighted average of these two rates of return.

The second stage of deriving a regulated tariff involves spreading the allowed annual revenue across actual gas shipments to derive a unit tariff. In order to provide a stable framework for gas transport and trading, it is common to base tariff derivation upon forecast gas flows through a system for one or more years into the future and then to adjust TSO revenues up or down when actual flows are known. The tariffs may be broken into commodity and capacity charges.

A simple way of setting a unit tariff would be divide the revenue requirement by the volume of natural gas shipped within a year. This is what is practiced, e.g. in Kazakhstan, where the tariff for the transportation of 1000 m3 of natural gas is determined according to the following formula:

$$T = R/V$$

where

R= total planned yearly revenue of the TSO

V=total annual volume of transportation of natural gas

With the help of similar formulas, the unit tariff may be set by the regulator or be calculated by the TSO under a methodology approved by the former. Revenues and prices may be subject to adjustments to inflation or consumer price indices.

There are essentially four types of tariff methodologies currently in use to allocate the overall costs to the shippers.

Postal tariffs use a single fixed fee for the transport of any volume of gas within the area covered by the tariff. Low-pressure distribution systems normally use postal tariffs. The advantages of postal tariffs can be seen precisely in their use in distribution or other highly meshed and concentrated systems; they are simple,

transparent and are easy for new entrants to use. This simplicity means that they are often the first tool used by a new regulator when it sets about the complex task of overseeing the gas sector.

Postal tariffs are most suitable for simple and small systems. Otherwise they may have disadvantages. They are discriminatory between consumers in different parts of large systems, given that different amounts of investment have been required to serve different consumers. Moreover, they do not provide signals for efficient use of the system based on spare and tight capacity in different parts of the system.

Under **distance-based tariffs**, a shipper is required to pay a charge based on the distance between designated entry and exit points. They are usually expressed on a booked capacity basis in a dimension of € or $/m3/h/100 km/year. A capacity charge is paid regardless of utilisation. It may be combined with commodity-based elements to reflect variable costs, and in particular the costs of fuel gas. The exact transportation costs would then depend on the load factor.

Where the load factor is high like in most long distance transportation (transit) systems serving long-term contracts with a high minimum pay (usually corresponding to at least 7000 hours of full utilisation, or a load factor of about 0.8) it may be practical to express the transport tariff in relation to the volumes transported. The unit used in the FSU is $/1000m3/100 km.

Distance-based tariffs are most useful for systems in which gas moves in one direction for long distances, with rather few intermediate takeoff points. In Europe, they have been used by a number of important systems, though current EU legislation requires the use of an entry-exit system. They are still used by some TSOs, e.g. in Germany or in Poland (Yamal).

In the **point-to-point** tariff system, a specific tariff is quoted for every entry/exit pair within the system. The advantage is that tariffs are explicit and should be cost-reflective, provided the system is physically modelled correctly. Nevertheless, this system is criticised for being very opaque. It can also become very complex, if there are a large number of entry and exit points. The method is also subject to criticism because of the portfolio effect and because it fails to provide any clear signals about capacity constraints at specific points in the system. The advantage for the operator is that he will have an overview of the flows requested and the required capacity to serve it.

In this tariff system, a separate tariff is quoted for each entry and exit point. Under the **entry/exit** tariff system, capacity booking can be done on the same basis that is separately for each entry and exit point, with actual movements being based, ex-post, upon combining a shipper's portfolio of capacity contracts. The typical

unit for a capacity-based entry-exit tariff would be € or $/m3/hour(day)/year or € or $/kWh/hour(day)/year.

Entry/exit tarification almost inevitably requires detailed physical and financial modelling of system flows which can become rather complex. At the same time, the entry/exit system allows for the development of a much more flexible market in capacity contracts, allowing new entrants easier access to the system. Ultimately, this market in capacity contracts can lead to a semi-regulated market in which some charges are set by the market, rather than by the regulator. This advantage has been offered by the UK system of auctioning entry capacity, which nevertheless led in the past to enormous scarcity rents in St. Fergus without triggering the investment to reduce the scarcity. The entry-exit system allows charges to be based much more closely on marginal rather than on historic costs. In practice, however, full-cost recovery based on historic investment usually takes priority.

5.4 Available capacity and congestion management

A comparison of gas transmission tariffs is difficult not only because of the more and more widespread use of the entry/exit system with a large number of entry/exit combinations that can be chosen, but also because TSOs operating under this model offer various capacity products, distinguishing firm from interruptible capacity and capacity contracts of different duration, short-term from long-term, peak seasons and so on. Firm capacity is intended to be available at all times during the period covered by the capacity contract and is normally more expensive. Contrary to that, interruptible capacity is offered as available.

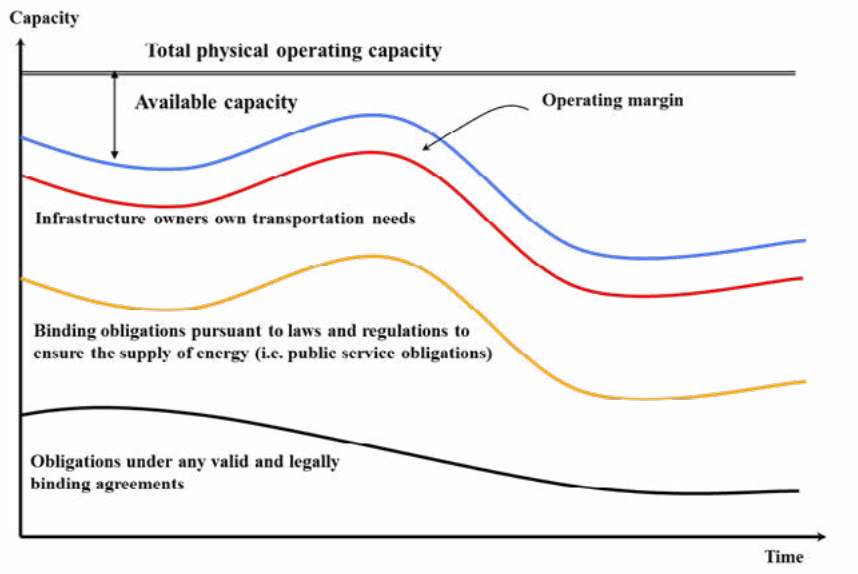
Box 10: Available Capacity

"Available Capacity" means the total physical operating capacity of the Energy Transport Facilities, less the physical operating capacity:

a. necessary for the fulfilment of obligations by the owner or operator of the Energy Transport Facilities under any valid and legally binding agreements relating to the transportation of Energy Materials and Products;
b. necessary for the fulfilment of any other binding obligations pursuant to laws and regulations to the extent those laws and regulations are intended to ensure the supply of Energy Materials and Products within the territory of a Contracting Party;
c. regarding hydrocarbons, necessary to account for the reasonable requirements, including forecasted requirements, for the transportation of Energy Materials and Products which are owned by the owners or operators of the Energy Transport Facilities or their Affiliates;
d. necessary for the efficient operation of the Energy Transport Facilities, including any operating margin necessary to ensure the security and reliability of the system.

Source: Draft Transit Protocol

Figure 6 Definition of available capacity



As it was discussed before, the provisions of the ECT do not deal with the free access to the Energy Transport Facilities. However, the definitions of available capacity and congestions management have been addressed by the draft Transit Protocol.

Capacity allocation mechanisms for the existing capacity will allow an immediate but temporary solution to the congestion problem. Investment decisions, on the other hand, require long lead time to realise; therefore, cannot serve as a prompt instrument to address capacity problems.

In case capacity requests exceed by volume and/or duration the available capacity (capacity congestion), there are two options to consider:

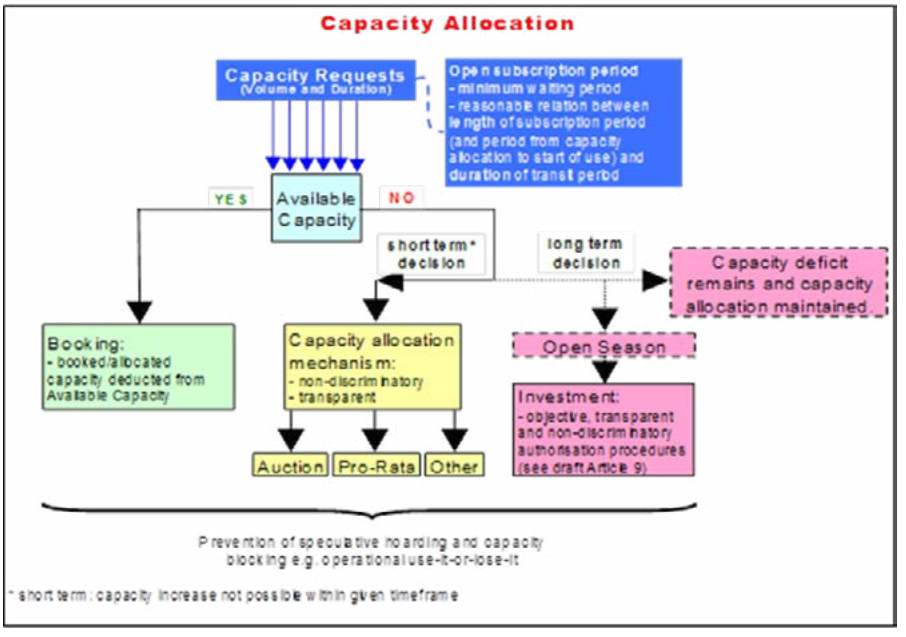
- It is possible to continue allocating the existing capacity in a non-discriminatory and transparent manner through conceiving one or more capacity allocation mechanisms (pro-rata, auction, other).
- It is possible to opt for an investment decision to create new capacity.

The draft Transit Protocol also provided for congestions management and capacity allocation and specified the following procedures for allocation of transit capacity, or any combination of them, by the way of good faith negotiation:

- First come first served, i.e. the allocation of capacity in order of date of receipt by the owner or operator of Energy Transport Facilities of a bona fide request for capacity.
- Pro rata application in case where total requests exceed available capacity, i.e. the allocation of capacity to prospective users in proportion to the transport volumes respectively requested bona fide by them.
- Auctions to ensure more transparent, efficient and non-discriminatory system of allocation of scarce transmission capacities needs.

Prior to a decision for allocating existing capacity or new investment for additional capacity, an "Open Season/Open Subscription" process may be initiated, which will help determine market demand with respect to additional capacity. As required by the draft TP above, such procedures must be based on objective, transparent and non-discriminatory principles.

Figure 7 Capacity allocation and creation



6 Instruments facilitating energy transit

Following the entry into force of the ECT in 1998, the Conference worked on the standard provisions concerning the conduct of conciliation procedure and the compensation of conciliators, as provided in Article 7(7)(f) ECT. The **Rules Concerning the Conduct of Conciliation of Transit Disputes** were adopted in December 1998.

Conciliation Rules is a tailor-made mechanism for transit disputes that can be considered as a hybrid of voluntary conciliation and binding dispute resolution of interim nature (usually, by definition, conciliator's recommendations are not binding). Due to such hybrid nature, it effectively serves the objective of ensuring international energy security with immediate effect rather than finding full answers to the details of contractual and operational arrangements that might be disputed among the parties.

The aim of Art. 7.7 ECT is to resolve amicably a transit dispute at the Contracting Parties level, not to deal with commercial disputes (which are to be solved through the contractually agreed dispute settlement mechanisms). It respects the contractual freedom of enterprises to solve their transit disputes themselves, while allowing a mechanism for solving transit disputes derived from actions by Contracting Parties, its sub-national authorities, agencies/controlled companies or privileged enterprises affecting transit (Arts. 22 and 23 ECT).

Conciliation procedure can be invoked by a party to the dispute which has to be a Contracting Party to the ECT. Nevertheless, nothing prevents two or more Contracting Parties party to the dispute to jointly invoke the conciliation mechanism. At the same time, nothing prevents the possibility of a non-Contracting Party to voluntarily agree to join the conciliation if (i) the Contracting Parties party to the dispute invite it, (ii) the conciliation is invoked by at least one Contracting Party party to the dispute, and (iii) the non-Contracting Party party to the dispute agrees to comply with the conciliator's decision under the same conditions as the Contracting Parties party to the dispute.

The Energy Charter Secretariat is responsible to maintain a roster of available conciliators based on the nominations by the Contracting Parties. The Secretary-General of the Secretariat appoints the conciliator who has or is likely to have the confidence of the Parties, will be independent and impartial, will avoid actual or apparent conflicts of interest, will respect the confidentiality requirements of these Rules, and will conduct the proceedings in a manner which ensures the integrity and reputation of the conciliation procedure.

Contracting Parties party to the dispute have to observe the conciliator's decision for 12 months or until resolution of the dispute, whichever is earlier. If a Contracting Party party to the dispute does not comply with the conciliator's decision during such time, it could be considered a breach of the ECT. After the 12 months period, interruption or reduction of transit (Art. 7.6 ECT) could no longer be forbidden. A Contracting Party party to the dispute who is not satisfied with the conciliator's decision could try to solve the dispute during those 12 months or go directly to arbitration if still available. In fact, the ECT envisages that the dispute will be resolved at some stage after the interim decision of the conciliator, presumably through arbitration.

In parallel with the negotiations on the Transit Protocol, the Conference mandated the preparation of legally non-binding model agreements. The work began with the preparation of the first edition of **Model Agreements for Cross-Border Pipelines (PMAs)**, which were approved by the Energy Charter Conference and released in 2004. Subsequently, the PMAs were revised and updated; their second edition was published in 2008. The Secretariat also developed Model Agreements for Cross-Border Electricity Projects (Electricity Model Agreements, or EMAs) and, as a supplement to EMAs, the Market and System Inter-Operability Agreement Guidelines for Cross-Border Electricity Projects (Guidelines to Electricity Model Agreements, or GEMA).

Model agreements are developed for the purpose of assisting parties to negotiate a final agreement within a particular field of activity. A model agreement therefore is meant to provide a template of prescriptive clauses that are designed to reflect the generally accepted practices within a given field. Model agreements are evolutionary by design: they are designed to be revised and updated in due time in order to reflect the most recent accepted practices within their field of concern.

The Model Agreements offer a set of texts which represent some of the possible drafting approaches that can be used on a voluntary basis and to the extent desired, by a state or investor involved in the negotiation of a pipeline project. The package of the Model Agreements includes a model Intergovernmental Agreement (IGA) – an international treaty between the States involved in the pipeline project – and a model Host Government Agreement (HGA) – one or more separate agreements between each of the respective States involved and the project investors. Whether or not these Models will be used either in full or in part and the extent to which the model texts may be adapted depends entirely upon the agreement of the parties.

Cross-border pipeline projects are subject to numerous specific legal requirements, including requirements arising from international law and relevant supra-national and national legal systems. Whilst the utmost has been done to develop texts which meet these multiple requirements, legislative frameworks are inevitably complex and varied and it is recommended that specialized advice be obtained in this regard in

relation to any specific project and the jurisdictions to which it relates.

The Energy Charter **Early Warning Mechanism** (EWM) aims to provide for a non-binding framework aimed at preventing and overcoming emergency situations in the energy sector related to the transit and supply of electricity, natural gas, oil and oil products through cross-border grids and pipelines. Emergency situations are defined as a major event in the energy sector with trans-frontier consequences. The mechanism may be initiated by any Signatory of the 1991 Energy Charter and the International Energy Charter in case of an emergency situation or the threat of an emergency situation by notifying the Secretary General. The Energy Security Contact Group is the core of the EWM. The Contact Group encourages the exchange and analyses of information among the parties involved on the object of contention. To establish the facts concerning the energy flows between countries involved, the Energy Charter Early Warning Mechanism envisages the creation of a Monitoring Group. The Monitoring Group would consist of experts and observers in the relevant energy field (i.e. gas, oil, electricity).

The Early Warning Mechanism is designed as an instrument of preventive energy diplomacy, confidence building and emergency measures based on voluntary acceptance by the Parties concerned and under the auspices of the Secretary General.

At the centre of the mechanism is the Energy Security Contact Group, which brings together the parties concerned, the Chairmanship of the Energy Charter Conference and the Secretariat. The Contact Group shall establish information relevant to the actual threat to energy security and aim at elaborating a common evaluation of the situation and recommendations on how to address it.

Read Case Study

This would be a good time to read carefully the case study on dispute settlement and early warning mechanisms. (Refer to Case Studies section at end of the module)

Case Study Transit Tariffs

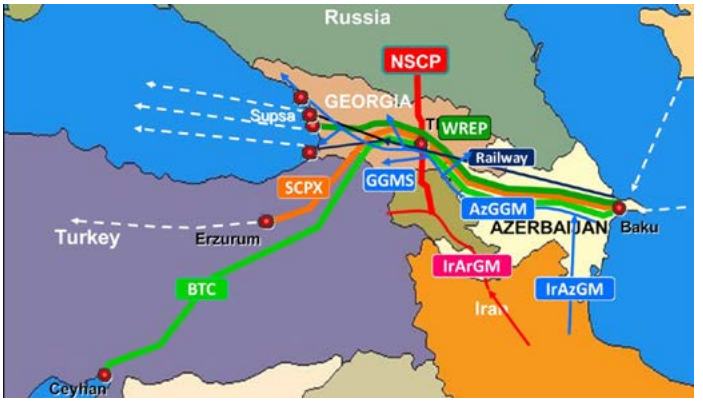
The objective of the case study is to discuss potential implications of renegotiation of transit fees for the energy security of the transit country. The participants will be invited to discuss and elaborate on different views presented below and discuss pros and cons of two different approaches to tariff setting.

Background information

Even though Georgia is not an important energy producer, it is a significant transit country in terms of its geostrategic position between Western Europe and Central Asia. It also serves as a transit country for natural gas supplies from Russia to Armenia. Gas deliveries are transited through the North-South Gas Pipeline system in the territory of Georgia. Georgian section of the pipeline crosses a very rough terrain that often causes the accidents. For this purpose, the operator of the pipeline had to build several tunnels and riverbank protection structures to protect from natural disasters. Annual volume of transited natural gas is around 2 bcm of natural gas.

According to the agreement (protocol) signed in early 1990s between the entities of Russian Federation and Georgia the transit fee was agreed in the form of in-kind payment at the rate of 10% of transited gas. However, in 2016 Gazprom proposed to the change the conditions of transit and move to monetary terms. Finally a deal was concluded in the beginning of January 2017 with the transit fee remaining in terms of gas supplies for the first year and eventual switch to monetary compensation. There is no available information on the details of the deal, including transit tariffs, since the terms of the agreement are kept confidential.

Figure 8 Transit routes in Georgia



Source: Oil and gas sector of Georgia, 2020

The following quotes will be helpful to understand the positions of the key stakeholders in this deal.

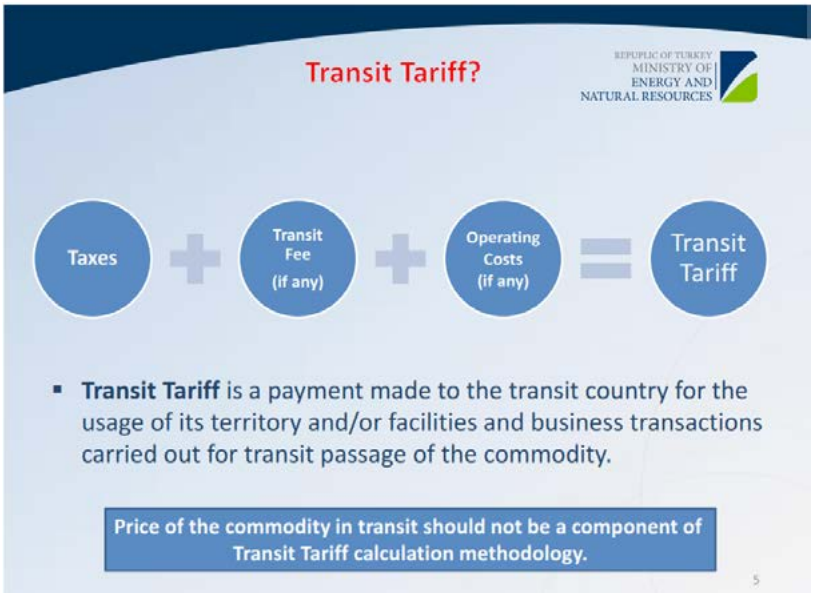
- Position of the supplier: *"Georgian Minister of Energy Kakha Kaladze never concealed that during his three previous meetings with the head of Gazprom, Aleksei Miller, the latter insisted on the monetization of payment for the transit of Russian natural gas to Armenia. Gazprom's CEO cited the European Energy Charter and the World Trade Organization's (WTO) rules to support his claim"* (Eurasia Daily Monitor Volume: 13 Issue 18, January 27, 2016).

- Position of the government: *"Minister Kaladze portrayed the agreement as a winning solution for his country, allowing Georgia to buy Russian gas for $30 less while achieving for Tbilisi one of the highest transit fees in Europe. At the same time, Gazprom Export LLC Director General Elena Burmistrova stated that the company offered mutually beneficial conditions, providing Georgia with guaranteed income flow and the security of gas supply"* (Eurasia Daily Monitor Volume 16 Issue: 11, January 30, 2019).

"The opposition considers the government's agreement to "monetize" the gas transit fee in 2017 as a crime against the interests of Georgia. One of the founders of the European Georgia party, parliamentary deputy Sergo Ratiani, noted that the opposition parties are demanding an investigation into why then-minister Kaladze had agreed to the unfavorable Russian conditions on transit fees. The new contract has caused tremendous damage to Georgia and gave Moscow [new] tools to use against us," the lawmaker argued. The opposition is demanding that the authorities not renew the contract with Gazprom and return to negotiations on an in-kind payment for gas transit" (EDM Volume 16, Issue 11, January 30, 2019).

For the reference, the following figure illustrates the approach of Turkey, another important transit country, to the transit tariffs for transit pipelines.

Figure 9 Transit tariffs in Turkey



Source: Ministry of Energy and Natural Resources of Turkey, 2018

Case Study Dispute settlement and early warning mechanisms

The objective of the case study is to discuss how instruments described in Section 6 could be used in a real emergency situation or a dispute.

Background information

Since 2005, Naftogaz and Gazprom, major state-owned gas companies in Ukraine and Russia, have been involved in political and economic conflicts on the terms and conditions of natural gas supplies to Ukraine and on the natural gas transit to the European Union (EU). Before the crisis in 2014, the conflicts which generated the most international attention occurred in 2006 and 2009.

On January 1, 2006, following a dispute about gas prices, Russia cut gas supplies to Ukraine. Although, none of the European Members experienced any serious consequences, by January 2, Hungary informed a decrease of up to 40% of its Russian supplies. Slovakian, Austrian and Romania supplies were said to be reduced by one third. Reductions in France were around 25 to 30% and in Poland up to 14%. Italian and German deliveries were also affected. Meanwhile, Gazprom insisted that it was supplying the full contractual volumes of natural gas to its European consumers and Ukraine was insisting that it was not using gas destined for transit to Europe. Due to the conflicting information it was impossible to understand what was really happening from the outset. When the conflict was resolved with the signing of a 5-year Russia-Ukraine contract on January 4, 2009, supplies of Russian natural gas to European consumers were back to normal levels. No European household or industry consumers experienced shortfalls.

The longest ever disruption of natural gas supplies to the European customers took place in 2009. This was preceded by earlier disputes between Russia (Gazprom) and Ukraine (Naftogaz) on the commercial conditions of natural gas supplies to Ukraine and on the transit to the EU. On 31 December 2008 the parties failed to reach a mutual agreement. On January 1, 2009, Gazprom cut out supplies to Ukraine, noting that supplies destined to the EU were continuing. Information published by the parties to the dispute began to be contradictory not just as regards commentaries and intentions attributed to the other side, but as regards the facts as well. The fact remains that the disruption of natural gas supplies to Ukraine was also followed by disruption of transit supplies to the EU.

Box 11: Russia-Ukraine Gas Dispute

The gas dispute between Russia and Ukraine in January 2009 was by far the most serious of its kind. The two sides failed to agree a price for Russian gas supply to Ukraine and a tariff for the transit of Russian gas to Europe before previous agreements expired on 31 December 2008. Russian exports to Ukraine were cut off on 1 January. Exports to 16 EU member states and Moldova were drastically reduced on 6 January and cut completely from 7 January. Deliveries to both Ukraine and other European countries restarted on 20 January following the signing of two new ten year contracts. The most seriously affected countries in the Balkans experienced a humanitarian emergency, with parts of the populations unable to heat their homes. Significant economic problems, but not of a humanitarian kind, were also caused in Hungary and Slovakia.

Source: The Russo-Ukrainian gas dispute of January 2009: a comprehensive assessment, Simon Pirani, Jonathan Stern and Katja Yafimava, Oxford Institute for Energy Studies 2009

The natural gas transit to the EU consumers was renewed on 20 January 2009 following enormous diplomatic efforts. It was at this point that the EU diplomacy became fully activated. Both parties to the dispute were turning to the EU trying to put blame on their partner and to receive European support, limited not just to political support, but also involving the level of public opinion.

In 2014 following the conflict between Russia and Ukraine over the territory of Crimea Peninsula, there was another crisis situation which could have led to the interruption of transit flows of natural gas to the EU. On 1 April 2014 Gazprom cancelled Ukraine's natural gas discount on the price of natural gas because of the accumulated debts for the supplies.

Due to the broad international efforts of the EU and Energy Community, and the Energy Charter Security Contact Group, the transit flows via Ukraine were not suspended during the 2014 crisis. Almost three months later a trilateral gas deal between Russia, Ukraine and the EU, the so-called "winter package" was agreed.

Lessons learnt

First of all, energy disputes involving a country of supply and a transit country may have adverse effects on third parties, not directly involved to a dispute. Secondly, transparency is necessary to avoid "information wars" and juggling with facts. Transparency activities should be in place before the actual disruption takes place. Lastly, all parties involved should be members of international, independent dispute prevention or dispute resolution procedures.

Application of the Energy Charter Early Earning Mechanism

The objective of the EWM is to provide for a non-binding framework aimed at preventing and overcoming emergency situations in the energy sector related to the transit and supply of electricity, natural gas, oil and oil products through cross-border grids and pipelines. Emergency situations indicate a major event in the energy sector with trans-frontier consequences.

Three levels of the Energy Charter EWM application:

- Initiation of the Energy Charter Early Warning Mechanism
- Establishment of the Energy Security Contact Group
- Establishment of the Energy Charter Monitoring Group

The Energy Charter policy provides with a forum and neutral platform for information exchange on developments against emergency situations that pose threat to energy security of a country or a region. The EWM is an instrument for preventive diplomacy and confidence building. The EWM is a complementary to existing mechanisms and does not duplicate them as no similar multilateral and precautionary instrument has been created so far.

It is important to note that the mechanism is not a dispute settlement mechanism, but an Early Warning Mechanism, meaning that it does not aim at replacing any dispute resolution mechanisms provided by the ECT. The main objective is to predict and prevent a real, potential crisis and to set up a neutral platform with voluntary participation of the countries involved in order to collect and share the relevant information before taking any further steps.

Learning Materials on Energy Transit

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